SEMESTER END EXAMINATION APRIL-MAY, 2026

Course Name: - B TECH (CSE WITH AIFM) **Semester:- IVth**

Paper Name: - DATA ANALYTICS & VISUALIZATION **Paper Code:- NAM-404**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions. Each question carries **10 marks.**

Section – A
Multiple Choice Question

1. Answer all the following questions. **5x3 =15**

i) Which type of visualization is best for showing trends over time?
a) Line Chart b) Pie chart c) Heat map d) Box plot

ii) What is main purpose of Data analytics?
a) To store large amount of data
b) To examine raw data and support better decision making
c) To design software system
d) NDT

iii) Which type of visualization is best for geographical data?
a) Bar Chart b) Line Chart c) Map or Heat Map d) Histogram

iv) What is main purpose of association Rules in data mining?
a) To find relationship and patterns among items in transaction
b) To classify data into categories
c) To reduce the size of database
d) NDT

V) Which of the following is NOT a key Benefit of performing exploratory data analysis (EDA)?
a) Identifying data errors and outliers
b) Selecting important features for modeling
c) automatically building predictive models
d) NDT

Section – B
Short Answer Questions

2. Answer any five of the following questions. **5x7=35**

i. a) Describe the complete data science workflow with a real world example?
b) Define data analytics with neat diagram ? Explain with example?

ii. a) Explain association analysis and its applications?
c) Describe Different data visualization tools and software .Compare their feature?

iii. a) Whats are data visualization models ? Explain different types with example?
b) Explain techniques used in exploratory data analysis?

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iv. a) Describe challenges in desingning visualizations for large datasets?
c) Explain principles of effective visualization design?

v. a) Expalin multidimentional data and techniques used to viusalize it?
b) Expaline visualization software design ?

Vi. a) What are recommendation system ? Compare collaborative and content-based filtering?
b) Explain network data and graph visualization techniques?

vii. a) Describe model evaluation techniques for machine learning models?
c) Discuss Challenge in designing visualizations for large database?

Section - C
Descriptive Questions

2x10=20

3. Answer any two of the following question.

i) a) Describe the process of data wrangling and cleaning? Why is it critical?

b) Explain time series data analuysis. Explain component like trend seasonality and noise?

ii) a) Explain the rol of color,layout and typographyin visualization?

c) Discuss real world applications of visualization in business intelligence and decision making?

iii) a) What is graphical perception? discuss its importance in visualization?

d) What are stacked graphs? Explain their advantage and limitation?

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